# Module 9.3 Class - Attribute: Coding Questions

## Question 1: Define a class representing an Employee. Include attributes for name, ID, and department.

Hint: Think about the type of attributes (class vs instance) and initialize them in the \_\_init\_\_ method.

## Question 2: Create a class for a digital clock. Include attributes to hold hours, minutes, and whether it's AM or PM.

Hint: Use methods to update time and toggle AM/PM. Consider how to enforce valid time ranges.

## Question 3: Implement a class to manage inventory for a grocery store. Include attributes for item names and quantities.

Hint: Consider using a dictionary for item names and quantities. Include methods to add, remove, or update inventory.

## Question 4: Write a class to represent a Book with class attributes for genre and a count of all books created.

Hint: Use a class attribute to keep track of the genre and total count. Increment the count in the \_\_init\_\_ method.

## Question 5: Design a class for a survey that collects responses. Include a method to add a response and a class attribute to count the total responses across all survey instances.

Hint: Increment the class attribute for total responses within the method that adds a new response.

## Question 6: Develop a class for managing a playlist. Include attributes for the playlist name, a list of songs, and the current song.

Hint: Include methods to add a song, remove a song, and play the next song. Think about how to handle the end of the playlist.

## Question 7: Create a class for a car with attributes for make, model, color, and speed. Include methods to accelerate and decelerate.

Hint: Ensure the methods to accelerate and decelerate adjust the speed attribute within reasonable limits.

## Question 8: Implement a class to represent a bank account with attributes for the account number, the account holder's name, and the balance. Include a class attribute for the base interest rate.

Hint: Include methods for depositing, withdrawing, and calculating interest based on the balance and base interest rate.

## Question 9: Write a class to model a smartphone with attributes for brand, model, and battery life. Include a method to use the phone which decreases battery life.

Hint: Consider how the battery life attribute changes with use and how to represent a low battery state.

## Question 10: Design a class to represent a user's profile on a website. Include attributes for username, email, and a list of posts. Include a method to create a new post.

Hint: Think about how each post affects the list of posts and how to ensure the email attribute remains valid.